

What is Claimed is:

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1. A pressure support system comprising:

a first housing member having a first plurality of cavities defined therein;

5 a second housing member having a second plurality of cavities defined therein, wherein the first and second plurality of cavities cooperate to define (a) a first chamber adapted to receive a first component of the pressure support system, (b) a second chamber adapted to receive a second component of the pressure support system, and (c) a first conduit operatively connecting the first component and the second in fluid
10 communication responsive to the first and second housing members being in an assembled relation; and

a fastening system that secures the first and second housing members in the assembled relation.

15 2. A pressure support system according to claim 1, wherein the first

housing member and the second housing member are each defined by a single piece of material.

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3. A pressure support system according to claim 1, wherein the first and

20 second plurality of cavities cooperate to define (a) an external coupling and (b) a second conduit operatively connecting one of the first component and the second component

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fluid in communication with the external coupling responsive to the first and second housing members being in the assembled relation.

5 4. A pressure support system according to claim 3, further comprising a patient circuit coupled to the external coupling and adapted to communicate a flow of gas from one of the first and the second component of the pressure support system to an airway of a patient.

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10 5. A pressure support system according to claim 1, wherein the cooperation of the first and second plurality of cavities define:
a pressure generator housing chamber as the first chamber adapted to receive a pressure generating element therein as the first component; and
15 a valve chamber as the second chamber adapted to receive a pressure control valve therein as the second component, and wherein the first conduit operatively connects pressure generator and the pressure control valve in fluid communication responsive to the first and second housing members being in an assembled relation.

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20 6. A pressure support apparatus according to claim 5, wherein during normal operation of the pressure support system, the valve chamber is downstream of the pressure generator.

Sub 123 7. A pressure support system according to claim 5, wherein at least one of the first and the second housing members includes a port defined therein for venting gas discharged by a pressure control valve from the valve chamber.

5 8. A pressure support system according to claim 1, wherein the first and second plurality of cavities cooperate to define a flow element chamber as the first chamber adapted to receive a flow element therein as the first component, and wherein at least one of the first housing member and the second housing member include a pair of flow measurement ports disposed on opposite sides of the flow element chamber for
10 communicating gas from the conduit to a sensor in a gas flow measurement system.

9. A pressure support system according to claim 1, further comprising a gasket disposed between the first and second housing members.

15 10. A pressure support system according to claim 1, wherein the fastening assembly includes a plurality of screws adapted to fix the first and second housing members in the assembled relation.

20 11. A pressure support system according to claim 1, wherein the first housing member includes a mounting structure adapted to receive a control circuit thereon in a fixed relation.

12. A pressure support system according to claim 1, wherein the first housing member defines a base portion of a housing for the pressure support system

13. A pressure support system according to claim 12, wherein the first housing member includes:

a first side and a second side, with the first plurality of cavities being defined in the first side of the first housing member;

a blower inlet port adapted to communicate a flow of gas from the second side to the first side of the first housing member;

a plurality of walls extending from the second side of the first housing member, wherein the plurality of walls define:

an inlet vent disposed on the second side adapted to receive gas from ambient atmosphere, and

a tortuous path from the inlet vent to the blower inlet port to deliver gas from ambient atmosphere received by the inlet vent to the blower inlet port.

14. A pressure support system according to claim 13, wherein the first housing member includes a port defined therein for venting gas from the conduit to the tortuous path.

15. A pressure support system according to claim 1, wherein a first cavity in the first plurality of cavities defines a first half of a pressure generator housing chamber, and wherein a first cavity in the second plurality of cavities defines a second half of the pressure generator housing chamber.

16. A pressure support system according to claim 15, wherein a second cavity in the first plurality of cavities defines a first half of the first conduit, and wherein a second cavity in the second plurality of cavities defines a second half of the first conduit.

17. A pressure support system according to claim 16, wherein a third cavity in the first plurality of cavities defines a first half of a valve chamber, and wherein a third cavity in the second plurality of cavities defines a second half of the valve chamber, with the first, second and third cavities in each of the first and second plurality of cavities being in fluid communication responsive to the first and the second housing members being in the assembled relation.

18. A pressure support system according to claim 17, further comprising a fourth cavity in the first plurality of cavities defining a first half of a second conduit and a fourth cavity in the second plurality of cavities defining a second half of the second conduit, wherein the second conduit communicates gas from the valve chamber to an airway of a patient.

19. A pressure support system according to claim 18, further comprising a fifth cavity in the first plurality of cavities defining a first half of a flow element chamber associated with the second conduit and a fifth cavity in the second plurality of cavities defining a second half of the flow element chamber.

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Sub 174 20. A pressure support system according to claim 1, further comprising a pressure pick-off port defined in one of the first housing member and the second housing member.

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